Quick setup guide

Radar sensor for continuous level measurement of water and wastewater

VEGAPULS WL 61

Profibus PA

Document ID: 47096

Contents

1 For your safety
1.1 Authorised personnel ... 3
1.2 Appropriate use ... 3
1.3 Warning about incorrect use ... 3
1.4 General safety instructions ... 3
1.5 CE conformity ... 4
1.6 NAMUR recommendations ... 4
1.7 Radio license for Europe ... 4
1.8 Environmental instructions ... 5

2 Product description
2.1 Configuration ... 6

3 Mounting
3.1 Mounting versions ... 8
3.2 Mounting preparations, mounting strap ... 11

4 Connecting to power supply
4.1 Wiring plan ... 12

5 Setup
5.1 DD adjustment programs ... 13
5.2 Adjustment ... 13

6 Supplement
6.1 Technical data ... 14

Information:
This quick setup guide enables a quick setup of your instrument.

You can find further information in the corresponding, comprehensive operating instructions. This manual is available on the supplied DVD or in the download area under "*www.vega.com*".

Operating instructions VEGAPULS WL 61 - Profibus PA: Document-ID 38062
Editing status of the quick setup guide: 2014-05-05

47096-EN-140801

1 For your safety

1.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

1.2 Appropriate use

VEGAPULS WL 61 is a sensor for continuous level measurement.

You can find detailed information about the area of application in chapter "*Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

1.3 Warning about incorrect use

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

1.4 General safety instructions

This is a state-of-the-art instrument complying with all prevailing regulations and guidelines. The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for the trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the necessary occupational safety measures with the current valid rules and regulations and also take note of new regulations.

The safety instructions in this operating instructions manual, the national installation standards as well as the valid safety regulations and accident prevention rules must be observed by the user.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

The safety approval markings and safety tips on the device must also be observed.

Depending on the instrument version, the emitting frequencies are in the C or K band range. The low emitting frequencies are far below the internationally approved limit values. When used correctly, there is no danger to health.

1.5 CE conformity

The device fulfills the legal requirements of the applicable EC guidelines. By affixing the CE marking, we confirm successful testing of the product.

You can find the CE Certificate of Conformity in the download section of our homepage.

1.6 NAMUR recommendations

NAMUR is the automation technology user association in the process industry in Germany. The published NAMUR recommendations are accepted as the standard in field instrumentation.

The device fulfills the requirements of the following NAMUR recommendations:

- NE 43 – Signal level for malfunction information from measuring transducers
- NE 53 – Compatibility of field devices and display/adjustment components
- NE 107 - Self-monitoring and diagnosis of field devices

For further information see www.namur.de.

1.7 Radio license for Europe

The instrument meets the LPR (Level Probing Radar) radio standard EN 302729-1/2.

It is approved for unrestricted use inside and outside of closed vessels in countries of the EU and EFTA that have implemented this standard:

Austria, Belgium, Bulgaria, Germany, Denmark, Estonia, France, Greece, Great Britain, Ireland, Island, Italy, Liechtenstein, Lithuania, Latvia, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland, Slovakia, Slovenia, Spain, Czech Republik and Cyprus.

Not included in the CE confirmity declaration are the countries Finland and Hungary implementing this radio standard at a later date.

For operation outside of closed vessels, the following conditions must be fulfilled:

- The installation must be carried out by trained qualified personnel
- The instrument must be stationary mounted and the antenna directed vertically downward
- The mounting location must be at least 4 km away from the radio astronomy stations, unless special permission was granted by the responsible national approval authority
- When installed within 4 to 40 km of a radio astronomy station, the instrument must not be mounted higher than 15 m above the ground.

You can find a list with the respective radio astronomy stations in chapter "*Supplement*".

47096-EN-140801

1.8 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfill this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

2 Product description

2.1 Configuration

Type label

The type label contains the most important data for identification and use of the instrument:

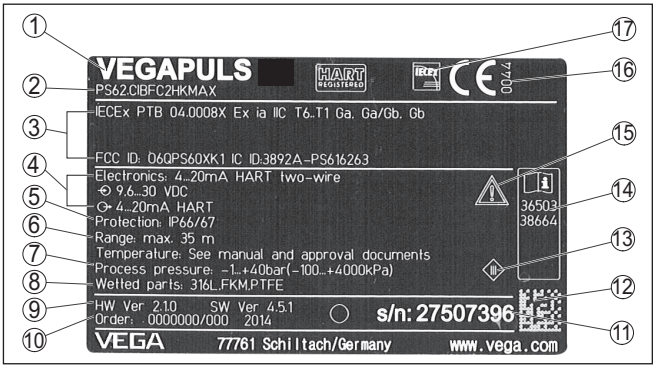

Fig. 1: Layout of the type label (example)

1 *Instrument type*
2 *Product code*
3 *Approvals*
4 *Power supply and signal output, electronics*
5 *Protection rating*
6 *Measuring range*
7 *Process and ambient temperature, process pressure*
8 *Material, wetted parts*
9 *Hardware and software version*
10 *Order number*
11 *Serial number of the instrument*
12 *Data-Matrix-Code for Smartphone-App*
13 *Symbol of the device protection class*
14 *ID numbers, instrument documentation*
15 *Reminder to observe the instrument documentation*
16 *Notified authority for CE marking*
17 *Approval directive*

Serial number - Instrument search

The type label contains the serial number of the instrument. With it you can find the following instrument data on our homepage:

- Product code (HTML)
- Delivery date (HTML)
- Order-specific instrument features (HTML)
- Operating instructions and quick setup guide at the time of shipment (PDF)
- Order-specific sensor data for an electronics exchange (XML)
- Test certificate (PDF) - optional

Go to www.vega.com, "*VEGA Tools*" and "*Instrument search*". Enter the serial number.

Alternatively, you can access the data via your smartphone:

- Download the smartphone app "*VEGA Tools*" from the "*Apple App Store*" or the "*Google Play Store*"
- Scan the Data Matrix code on the type label of the instrument or
- Enter the serial number manually in the app

3 Mounting

3.1 Mounting versions

Straining clamp

Most simply mount the instrument via the straining clamp. For this purpose, the connection cable is provided with a strain relief wire of Kevlar.

In order to avoid faulty measured values, make sure that the sensor does not oscillate.

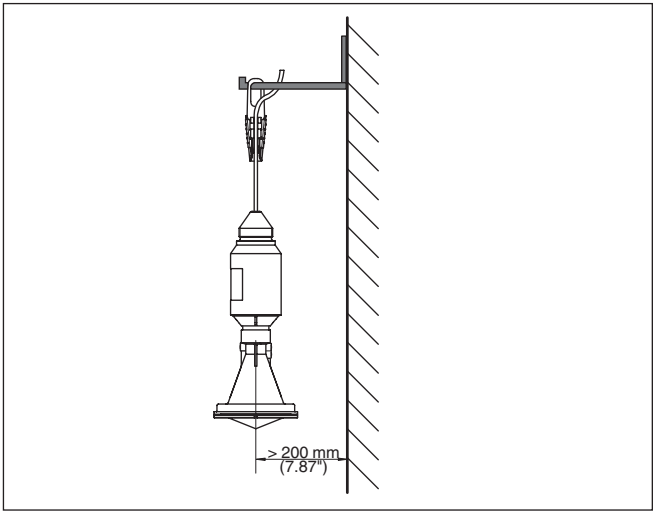

Fig. 2: Mounting via a straining clamp

Mounting bracket

For a rigid mounting, a mounting bracket with opening for thread G1½, e.g. from the VEGA product range, is recommended. The mounting of the sensor in the bracket is carried out via a G1½ counter nut of plastic. Take note of chapter "*Mounting instructions*" for the distance to the wall.

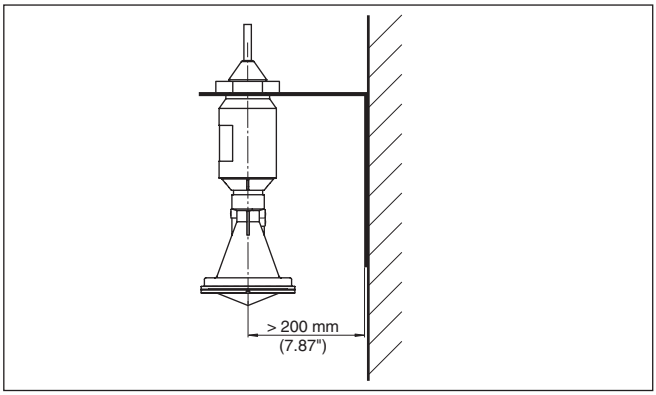

Fig. 3: Mounting via a mounting bracket

Mounting strap

The optional mounting strap enables sensor mounting on e.g. a ceiling, wall or bracket. It is available in the following versions:

- Length 300 mm for ceiling mounting
- Length 170 mm for wall mounting

Mounting strap - Ceiling mounting

The instrument is normally mounted with a strap vertically on the ceiling.

This ensures swivelling of the sensor up to 180° for optimum orientation.

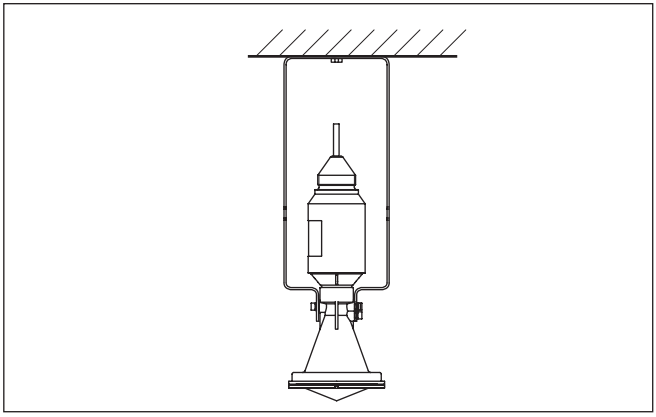

Fig. 4: Ceiling mounting via the mounting strap with length 300 mm

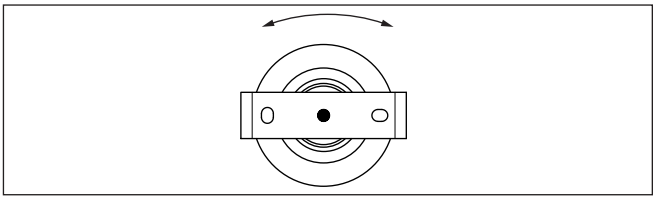

Fig. 5: Rotation in the centre with ceiling mounting

Mounting strap - Wall mounting

As an alternative the strap mounting is carried out horizontally or obliquely.

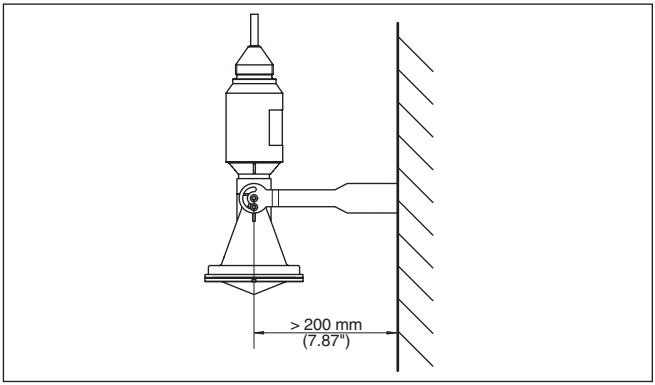

Fig. 6: Wall mounting via the mounting strap with length 170 mm

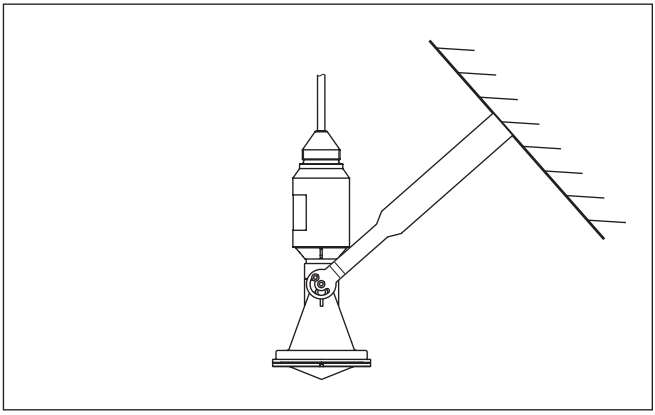

Fig. 7: Wall mounting with inclined wall via the mounting strap with length 300 mm

Flange mounting

For mounting the instrument on a socket or a manhole cover, an unassembled combi collar flange for DN 80 (ASME 3" or JIS 80) is optionally available also as retrofitting part.

You can find drawings of these mounting options in chapter "*Dimensions*".

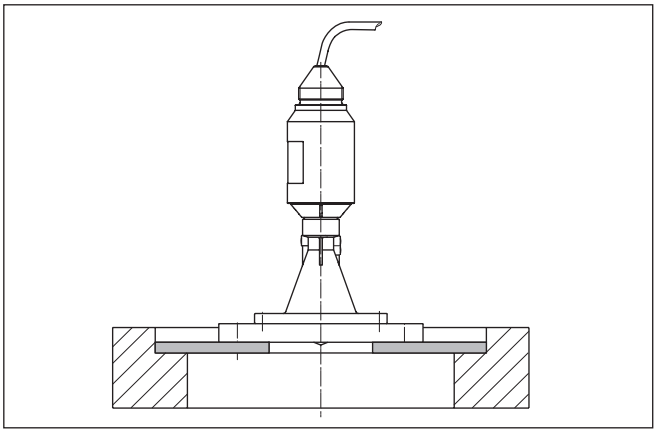

Fig. 8: Mounting by means of an adapter flange, for example, on a manhole lid.

3.2 Mounting preparations, mounting strap

The optional mounting strap is supplied unassembled. It must be screwed to the sensor before setup with the attached screws. Max. torque, see chapter "*Technical data*". Required tools: Allen wrench size 4.

There are two different variants of screwing the strap to the sensor. Depending on the selected variant, the sensor can be rotated in the strap infinitely variable through 180° or in three steps 0°, 90° and 180°.

4 Connecting to power supply

4.1 Wiring plan

Wire assignment, connection cable

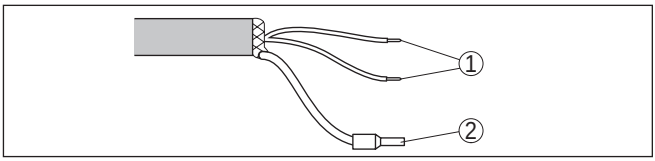

Fig. 9: Wire assignment in permanently connected connection cable

1 brown (+) and blue (-) to power supply or to the processing system
2 Shielding

5 Setup

5.1 DD adjustment programs

Device descriptions as Enhanced Device Description (EDD) are available for DD adjustment programs such as, for example, AMS™ and PDM.

The files can be downloaded at www.vega.com/downloads under "*Software*".

5.2 Adjustment

Since a radar sensor is a distance measuring instrument, the distance from the sensor to the product surface is measured. For indication of the real level, an allocation of the measured distance to the percentage height must be carried out. To perform the adjustment, enter the distance with full and empty vessel, see the following example:

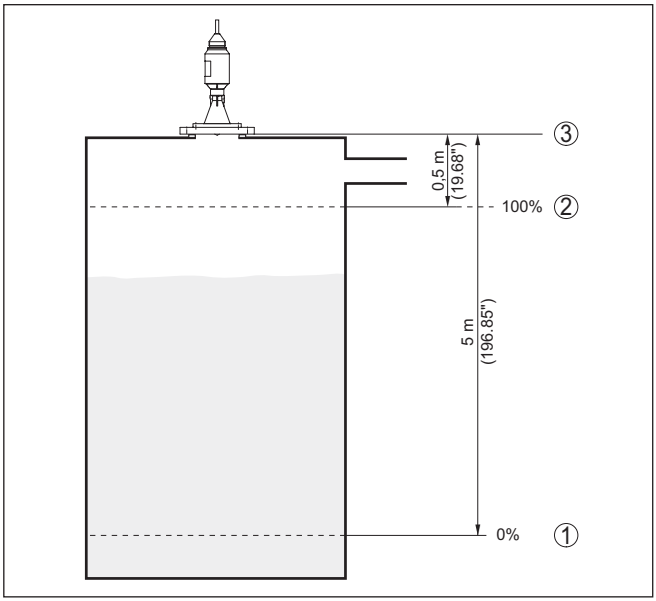

Fig. 10: Parameterization example

1 Min. level = max. meas. distance
2 Max. level = min. meas. distance

If these values are not known, an adjustment with the distances of for example 10 % and 90 % is possible. Starting point for these distance specifications is always the seal surface of the thread or flange. By means of these settings, the real level will be calculated.

The real product level during this adjustment is not important, because the min./max. adjustment is always carried out without changing the product level. These settings can be made ahead of time without the instrument having to be installed.

6 Supplement

6.1 Technical data

Electromechanical data - version IP 66/IP 68 (2 bar)	
Cable entry	IP 68 cable gland
Connection cable	
– Configuration	two wires, one Kevlar cable, braiding, cover
– Wire cross-section	0.5 mm² (AWG 20)
– Standard length	6 m (19.69 ft)
– Max. length	550 m (1804 ft)
– Min. bending radius	25 mm (0.984 in) with 25 °C (77 °F)
– Diameter approx.	8 mm (0.315 in)
– Wire isolating and cable cover	PUR
– Colour - standard	Black
– Colour - Ex-version	Blue
– Fire protection classification	UL94-V0

Voltage supply	
Operating voltage	
– Non-Ex instrument	9 … 32 V DC
– Ex-ia instrument - Power supply FISCO model	9 … 17.5 V DC
– Ex-ia instrument - Power supply ENTITY model	9 … 24 V DC
Power supply by/max. number of sensors	
– DP/PA segment coupler	max. 32 (max. 10 with Ex)
– VEGALOG 571 EP card	max. 15 (max. 10 with Ex)

47096-EN-140801

47096-EN-140801

Printing date:

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
Subject to change without prior notice

© VEGA Grieshaber KG, Schiltach/Germany 2014

47096-EN-140801

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com